Abstract

[00039] A thermal energy management system is provided having a heat spreading device that is operatively engaged with at least one semiconductor chip and a thermal bus operatively engaged with the heat spreading device so as to transport thermal energy from the heat spreading device to a heat sink. The heat spreading device includes a heat pipe and the thermal bus includes a loop thermosyphon. A second thermal bus may be operatively engaged with the first thermal bus so as to transport thermal energy from the first thermal bus to a heat sink. The second thermal bus may also include a loop thermosyphon. A method of managing thermal energy in an electronic system is also provided that includes spreading thermal energy generated by one or more devices over a surface that is relatively larger than the devices, thermally coupling an evaporator portion of a loop thermosyphon to the surface, and thermally coupling a condensing portion of the loop thermosyphon to a thermal energy sink, e.g., a second loop thermosyphon, convection fin, or cold plate.

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